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<b>14. ABSTRACT</b> Since 1947 the USAF has benefited greatly through the use of personnel research. These programs have provided senior leaders the scientific support necessary to base strategic force management decisions and have enabled the force to evolve in step with the service's growing mission. Many of these benefits have been a direct result of maintaining an organic capability that is steeped in experience and ready to respond to mission requirements or unforeseen directives. However, after the closure of the Air Force Research Laboratory's Mission Critical Skills Division in 1999, the Air Force has relied solely on contractor support to meet its personnel research needs. This construct poses distinct challenges for the Air Force in three ways: 1) Lack of central oversight increases the potential for redundant research and the format does not lend itself well to longitudinal studies. 2) Synergy and corporate memory have been lost. 3) The process for funding and completing such contracts is slow and unable to respond to the AF's immediate needs. The AF must revitalize its personnel research program to remain relevant and successful.					
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MASTER OF MILITARY STUDIES

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TITLE:

***FLYING BLIND: The Value of Organic Personnel Research in the United States Air Force***

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF MILITARY STUDIES

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## **Executive Summary**

**Title:** Flying Blind - The Value of Personnel Research in the United States Air Force

**Author:** Major Christopher M. Busque, United States Air Force

**Thesis:** Personnel research is essential to support senior leaders in developing and defending force management policy decisions. While some of this work can be completed through the use of contractors, maintaining an organic, on-hand personnel research capability has clear advantages over contractual alternatives. Due to limited funding constraints, the Air Force's personnel research program is not optimally organized or properly resourced for emerging missions and future operations.

**Discussion:** Since its inception in 1947, the Air Force has benefited greatly through the use of personnel research. These programs have provided senior leaders the scientific support necessary to base strategic force management decisions and have enabled the force to evolve in step with the service's growing mission. Many of these benefits have been a direct result of maintaining an organic capability that is steeped in experience and ready to respond to mission requirements or unforeseen directives. However, after the closure of the Air Force Research Laboratory's Mission Critical Skills Division in 1999, the Air Force has relied solely on contractor support to meet its personnel research needs. This construct poses distinct challenges for the Air Force in three ways: 1) The lack of central oversight increases the potential for redundant research and duplicated effort and as contracts and research change hands, the format does not lend itself well to longitudinal studies. 2) Without a central organization dedicated to the management of personnel research, the synergy and invaluable benefit of corporate memory have been lost. 3) The process for funding, acquiring, and completing such contracts is slow and limited in its ability to respond to the Air Force's immediate needs.

**Conclusion:** The current operating environment is filled with political, social and operational change, and the Air Force must reorganize and revitalize its personnel research program to remain relevant and successful. Doing so will require funding a \$4 million dollar annual budget for a limited staff of employees to provide oversight and direction for all personnel research projects across the Air Force. The work performed by this staff has the potential to save tens of millions of dollars a year in personnel costs by creating efficiencies across the Air Force, making the return on investment well worth the initial cost. The risk of not doing so may result in a significant decline in mission performance and/or increased attrition of personnel. The Air Force must seriously consider reinstating its organic personnel research capability or accept the costly risks of ill advised policy.

### **DISCLAIMER**

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## *Preface*

The experience of completing this research project has been educational and rewarding. As a Force Support Officer (Manpower, Personnel and Services) in the United States Air Force, the study has allowed me to broaden my perspective of my own career field. At the onset of the project, I had little knowledge of what “personnel research” entailed or of its great value to the Air Force.

Throughout the study, I developed a sincere appreciation for the impact this work has had on our force structure, and more importantly, the potential efficiencies it can create for the Air Force in the future. In writing this paper, I hope that I have effectively conveyed this appreciation to my audience, and that those who read it are able to understand and support the arguments found within.

I would like to thank Mr. Johnny Weissmuller, Dr. R. Bruce Gould, and Dr. Lisa Mills for helping me assemble the history of personnel research in the United States Air Force and providing me the foundation necessary to establish a thesis and complete this project. I am also grateful for the support and guidance of Dr. Charles (Doug) McKenna for his mentorship and assistance.



## **Introduction**

The Air Force, since its inception in 1947, has been an organization on the leading edge of a dynamic operating environment. To be successful, its force structure and personnel policy have had to keep pace with this evolution. As stated recently by Air Force Chief of Staff, General Norton Schwartz, during his address at the Marine Corps University, "the current strategic environment is one of emerging threats, and constrained resources; (that includes) a fixed manpower ceiling.... These limitations require us be concerned about personnel costs.... We need to automate processes and apply technology where we can in order to improve efficiency, or run the risk of ending up like General Motors; paying for it out of operational capability."<sup>1</sup> Furthermore, he added that "his greatest concern over the next 10-15 years is the efficient and effective management of human capital."<sup>2</sup> The Air Force, during the first fifty years of its existence, could rely on a dedicated staff of personnel researchers to aid senior leaders in these endeavors; thereby systematically providing analysis and guidance on force management issues. This capability has enabled the service to navigate numerous political, social, economic and mission related challenges while developing an elite and professional force of dedicated Airmen. However, due to budget constraints and competing priorities, the Air Force has eliminated the personnel research capability from its organic inventory, and for the last decade, has been hampered by the use of contractors to meet its unfunded requirements in this area.

The alternative approach of using contractors for personnel research is initially less costly. However, it presents the Air Force with several challenges that ultimately negate any of the initial savings. For example, without a central organization dedicated to the oversight of personnel research, the synergy and invaluable benefit of corporate memory is lost. The lack of



central management increases the potential for redundant research and duplicated effort. As contracts and research change hands, the format does not lend itself well to longitudinal studies, upon which much of this work is dependent. Additionally, the process for funding, acquiring, and completing such contracts is slow, and limited in its ability to respond to the Air Force's immediate needs. The cumulative effect of these mitigating factors has led to reduced flexibility in the area of human capital management, and has arguably cost the Air Force millions of dollars in missed opportunities for efficiency. Today's manpower costs for the Air Force approximate an annual expense of \$40 billion dollars, making it one of the largest draws on resources across the entire budget. However, there is no funding or dedicated manpower for a standing personnel research agency.<sup>3</sup> In an operating environment with limited resources, competing priorities, and expansive operating costs, the Air Force must have, on-hand, the most effective means of analyzing and optimizing personnel performance and efficiency in order to reduce the enormous costs associated with human capital management.

This paper will look closely at the transformation of the Air Force's personnel research capability from the Air Force's inception in 1947 to the present day. It will highlight examples of how this organic capability was best suited to serve the Air Force in creation and sustainment of its force structure and in making force management policy, and how the current form is not optimally organized or properly resourced for emerging missions and future operations. Finally, the paper will conclude by proposing recommendations for the future.

## **BACKGROUND**

The Air Force, as an organization built out of emerging technology and warfare doctrine, has always distinguished itself from the other services in terms of mission, culture and personnel. While distancing itself from the Army, the Air Force considered the air domain and "air

mindfulness" unique from traditional forms of warfare and concluded that successful Airmanship required an equally unique set of knowledge, skills, abilities and other characteristics.

Identifying these traits and assigning personnel to the proper job required a systematic and scientific approach. "The success of the Aviation Psychology Program of World War II in providing an economical system for identifying potential aircrew members awakened interest in a post-war program to address personnel management problems for a greater proportion of Air Force personnel."<sup>4</sup>

Following its inception, the Air Force expanded rapidly in manpower during the first decade of its existence. Air Force strength started out at 305,827 in 1947, but then quickly rose to 977,593 in 1953.<sup>5</sup> Since that time, the advent of greater technology, efficiency, and force management science has enabled an almost complete return to initial end strength, which in 2010 sits at 332,700. As the Air Force fluctuated in size and scope of mission, the World War II personnel classification programs were carried into the post war environment. From 1950-1954 the Air Force saw a steady increase in behavioral science programs and capabilities. In 1950 specifically, the Human Resources Research Center (HRRC) produced a number of important studies that would provide the service scientific management capabilities for years to come.<sup>6</sup> In effect, the HRRC had created a firm and stable foundation for the growth of future human resources research. The importance of HRRC's work became more evident as the number of requests to aid in solving operational personnel problems increased and eventually exceeded the capacity of the center at its given size and structure. Also evident was that leadership in the operational community was becoming increasingly aware of the value of, and the need for, research in solving personnel problems.<sup>7</sup>

The heightened appreciation for personnel research ultimately led to the establishment of the Air Force Personnel and Training Research Center (AFPTRC) in 1954. The AFPTRC represented a logical extension of the growth that had characterized the HRRC. With the incorporation of other research functions from across the Air Force, the new center had a heightened focus in the areas of officer educational research and the pursuit of studies in intelligence gathering methods.<sup>8</sup>

The appreciation for personnel research in the 1950s was short-lived, however, as the newly formed center was derailed only three years after its inception. "1957 culminated in an Air Staff decision to abolish basic research in the personnel and training area and to reduce significantly all personnel and training research. This (ultimately) resulted in the decision to abolish AFPTRC."<sup>9</sup> According to a 1972 manuscript by S.W. Brenner and K.M. Ritchhart of the U.S. Air Force Academy, "Whatever else may be said about it, the abolition of AFPTRC was both a dramatic and traumatic event in the history of training research in the Air Force. It created resentment and hostility in the scientific community which supports human resources research. Scars of these attitudes still remain."<sup>10</sup>

The single surviving element following the demolition of AFPTRC was the Personnel Research Laboratory. Due to issues of geographical separation the laboratory was transferred from the Air Research and Development Command to the Air Force Systems Command under the Aerospace Medical Division (AMD) at Brooks AFB where it remained from 1958-1968. Its mission included "the development and revision of the paper-and-pencil tests used for skill upgrading in each Air Force specialty, maintaining the operational airman and officer selection/classification measures, monitoring officer performance, assessing adaptability and motivation, and doing ad hoc studies for higher headquarters based upon growing longitudinal

personnel data files.”<sup>11</sup> During these 10 years, the behavioral science program in the Air Force built upon the foundation of research inherited from AFPTRC and expanded methodologies and information resources for personnel planners.

### **The Rise and Fall of the Air Force Human Resources Laboratory**

As the United States entered the Vietnam War, Air Force leaders began to demand greater personnel research capability to meet their growing operational needs. The expanded involvement in the war in 1965 raised questions concerning Air Force personnel assignments to the area of operations and the availability of pilots in certain categories. Senior leadership concluded these questions could be answered only through the longitudinal personnel data files at the Personnel Research Laboratory. Studies of this nature attracted the attention of the Secretary of the Air Force, who directed the Air Force Scientific Advisory Board to review the behavioral science research program. The board recommended the creation of a new organization, the Air Force Human Resources Laboratory (AFHRL), which was to provide increased focus on manpower, personnel and training research. The new laboratory was established on 1 July 1968 at Brooks AFB, Texas.<sup>12</sup> Initial manpower included 23 positions at the Brooks AFB headquarters, 219 positions assigned to the Personnel Research Division at Lackland AFB, Texas, and 39 for the Training Research Division at Wright Patterson AFB, Ohio.<sup>13</sup>

At the conclusion of the Vietnam War operational focus shifted more strongly towards the Cold War. For the Air Force, this shift included a heightened focus on space and missile programs. Additionally, the Department of Defense was shrinking in terms of manpower, which meant efficient personnel management would be essential. The Air Force, facing a growing

diversity of missions, while at the same time a reduction in force structure, placed a premium on effective personnel research. Fortunately, the Human Resources Laboratory (HRL) was fully operational and able to provide the Air Force scientific methods to help ensure the highest levels of personnel effectiveness. During the first two years of existence, the Lab averaged 12 projects annually. This number nearly tripled in the years 1970-1972, and in 1974 the Lab had completed an astonishing 96 studies for the Air Force.<sup>14</sup> Evidence of this can be seen in an article published in *Aviation Week & Space Technology* in July of 1976:

“The advent of new-generation weapon systems in the Air Force inventory is increasing the pressure on Systems Command's Human Resources Laboratory to accelerate its research on training simulators for flying and maintenance. ...Manpower reductions, because of the inflationary costs of pay and benefits increases, are forcing USAF to improve the productivity of its personnel, and HRL-developed technology for improved selection and training of personnel is a key factor in meeting this problem.”<sup>15</sup>

The HRL continued to produce valuable research throughout the 1980s. Following the end of the Cold War, the Air Force transitioned from operating in a bipolar environment with clearly distinguishable super powers, to one that was less clear, with potential for smaller, regional conflicts involving both state and non-state actors. Accordingly, the service saw the need to be lighter, leaner and more agile. All of the services were drawing down in manpower and the Air Force was no exception. Concurrently, they were pursuing technology that could enhance the eyes and ears of the fighting forces and provide rapid mobility for global engagements. “The force’s operational tempo was higher than it had been in the Cold War. ...By 1995, Air Force personnel strength was down by 50 percent overseas, but the number of Air Force people on temporary duty overseas was up nearly fourfold since the fall of the Berlin Wall.”<sup>16</sup> The emphasis on expeditionary operations forced the Air Force to look for areas to create efficiency through reorganization, and research laboratories such as the HRL received a great deal of scrutiny.

In 1990 the Air Force consolidated the management of its 14 laboratories into four "superlaboratories", reducing administrative overhead in an attempt to improve research work and minimize job losses among scientists and engineers. The Armstrong Laboratory at Brooks AFB, Texas, absorbed the HRL along with three other labs. As stated by Major General Robert Rankine, Deputy Chief of Staff for Technology at the time, "reducing the number of Air Force labs and increasing their size will make them more flexible -- better able, for example, to adjust to budget fluctuations -- and enable them to carry out the interdisciplinary research the Air Force considers necessary for the 1990s."<sup>17</sup> The consolidation eliminated 331 nontechnical jobs, 42% of the laboratory-wide cutback. The remaining 58% of the reductions were in technical jobs.<sup>18</sup>

While the initial consolidation of Air Force laboratories reduced overhead and budgetary pressure, another push towards a unified laboratory structure came in the form of the Section 277 of the National Defense Authorization Act for FY1996. This section instructed the DoD to produce a five-year plan for consolidation and restructuring of all defense laboratories. In October 1997 the four "superlaboratories" that had existed under Air Force Systems Command (one of which was the Armstrong Laboratory) consolidated in the formation of the Air Force Research Laboratory, with headquarters at Wright-Patterson AFB, Ohio. In this consolidation the Armstrong Laboratory remained largely intact, but changed its name to the Human Effectiveness (HE) Directorate. The HRL became a division under the HE and was renamed the Mission Critical Skills Division. In conjunction with the redesignation, the mission was scaled back to only support personnel research as it related to the embedded war fighter.<sup>19</sup> In 1997 the Secretary of the Air Force commissioned a Scientific Advisory Board to assess the value of the work being conducted by the Mission Critical Skills Division and awarded them the highest rating ever given for their depth of research and mission impact.<sup>20</sup>

Around that same time the Air Force had been funded by Congress specifically to conduct research in the areas of space-based weapons systems. Congressional review determined the Air Force Research Laboratory had not made sufficient progress in these space programs, and directed them to reallocate resources from other research to meet the requirement. As a result, despite recent accolades and stated mission impact, the Mission Critical Skills Division (formerly the Human Resources Laboratory), was shut down in 1999. While small elements of their mission were transferred to other organizations, much of it was terminated. As such, the Air Force's organic manpower, personnel and training research, the type highlighted in this paper, ceased to be conducted by an Air Force entity beyond 1999.

### **Current Operating Environment, Personnel Research Capabilities and Gaps**

Since the closure of the Mission Critical Skills Division, the Air Force has seen multiple transformations in both its operating environment and force structure. Examples include the advent of stealth technology, network centric warfare, and the surge in demand for Remotely Piloted Aircraft. The Global War on Terror has mandated a leaner, more expeditionary Air Force. Budget cuts and the need to recapitalize weapons systems have forced the service to down size in dramatic fashion. Changing demographics in the youth of America have led the Air Force to modify its recruiting methods in order to capture a broader set of skills. An increase of wounded warriors returning to the service and the potential repeal of the "don't ask, don't tell" policy pose new force management challenges that were unforeseen at the closure of the Mission Critical Skills Division. However, after thorough review of the history of personnel research as it relates to changes in the operating environment, one can see a correlation between the two.<sup>21</sup>

"During periods of stability and a lack of pressing personnel issues, there is less need for personnel research devoted to fixing problems. During periods where new occupations

are emerging, or old ones changing, or where there are new conditions which challenge the current accession or assignment of personnel, the metrics resulting from personnel research can be especially useful. A dynamic Air Force with evolving missions and changing manpower requirements has a greater need for objective research-based metrics to support policy decisions.”<sup>22</sup>

As it has since inception, the operating environment for the Air Force continues to evolve (operationally, politically and socially) and there is clearly a value associated with maintaining at least some form of in-house capability in preparation for when the environment and mission require immediate response. However, the Air Force boldly operates in the face of today’s dynamic strategic environment without the dedicated support of a personnel research agency, and by doing so, incurs significant risks associated with ineffective and inefficient force management policy.

To mitigate this missing capability, the Air Force has adopted a “contract as needed” approach to meet their personnel research needs. This practice, while feasible in theory, is not optimal for several reasons. First, the use of multiple individual contractors is susceptible to overlap or duplication of research effort. “What used to be a strategic plan coordinated by the Lab is now considered just to be a tactical issue that local commanders can handle.”<sup>23</sup> Along those lines, if two contractors are conducting similar studies but using different methods, it becomes difficult to incorporate the findings into a meaningful practical application. At a minimum it would require an adequate internal staff to evaluate and integrate the results into a usable form. In other words, separate efforts with different priorities and focus can confuse rather than clarify an issue.

Second, the contract approach is greatly hindered by the loss of insight and synergy that have, in the past, been provided by corporate memory. Having access to past data and knowledge of past issues, solutions, research methods, and familiarity with the Air Force culture



and environment are essential to efficient, valid, and useful longitudinal research. Since the elimination of a centralized personnel research function, the Air Force has struggled to maintain a comprehensive database of preexisting studies. Over the years, ownership of this database has changed hands numerous times, and due to limited use, has seen significant atrophy. With limited experience and access to this information, the use of different contractors hinders the understanding of the historical context and practical framework for the work being done. A second order effect of the absence of a central personnel research agency is the lack of a critical mass to attract the attention of researchers from other organizations in the field. As a result, the Air Force often is informed of these studies “after the fact” and therefore unable to contribute to or make use of their findings. “The Lab used to be the lightening rod to attract sparks from the field, but those days are gone now.”<sup>24</sup>

Third, and possibly most important, is the implementation process and time lag involved with research contracts. To create a contract, the Air Force must define the research requirements, submit the work for funding (up to five years in advance), advertise the project, and select a contractor before the work can begin. The process is inefficient and unresponsive to the rapidly changing needs of the Air Force. The disadvantages outlined above surrounding sole contracted personnel research will be discussed further in the following section.

### **The Value of Organic Personnel Research**

Over the years, the Air Force has benefited greatly through the use of personnel research. These programs have provided senior leaders the scientific support necessary to make strategic force management decisions and have enabled the force to evolve in step with the service’s growing mission. “Personnel research is not an end in itself but rather a means toward

responsibly managing human resources. The metrics resulting from research studies allow managers to avoid an over-reliance on subjective judgments when making decisions about effective manpower utilization.”<sup>25</sup> While in general, personnel research is a key tool in helping leaders effectively respond to changing environments, organic personnel research has distinct advantages over sole contractor support.<sup>26</sup> To illustrate this point, a few prominent examples will be highlighted in greater detail. They include the Armed Services Vocational Aptitude Battery (ASVAB), Air Force Officer Qualifying Test (AFOQT), and the validation of the Air Force’s officer grade structure and enlisted skill requirements.

#### Armed Services Vocational Aptitude Battery (ASVAB)

In the late 1960s a congressional mandate had been issued to create a standardized entrance exam across all the services. This exam intended to predict individual performance in the military environment, reduce student "washouts" and improve retention of people in the service. The Air Force, having more Industrial Psychologists at the time, was the lead service for conducting research of this nature, and the HRL was charged with that work. The laboratory had already produced highly renowned Air Force Aptitude Exams and as a result became the Executive Agent in the development of the ASVAB.<sup>27</sup> The DoD placed a priority mandate on the ASVAB, so the project had to be completed quickly. Within a year the HRL had developed the test and delivered it to DoD for implementation across all the services.

The initial battery was a paper-and-pencil exam, but years later further research was required to develop an automated version.

“...New types of personnel testing were being investigated with a long-term goal of providing an automated procedure whereby an applicant could be tested at a recruiting station, and immediate analysis performed using a computer data link. ‘It was possible that the system could not only show what jobs would be most suitable for the recruit, in

the order of USAF priority needs, but also when they would be available,' an HRL researcher said."<sup>28</sup>

The automation required an algorithm, called computer adaptive testing, which enabled a unique test for each recruit by varying questions based on response patterns. This variation of questions greatly improved the validity of the test and decreased its vulnerability to cheating. Since its development, the ASVAB has remained the primary method of determining accession eligibility and initial job qualification for enlisted personnel across the DoD.

Development of the ASVAB serves as a great example of how, by having an organic personnel research capability on-hand, the Air Force was able to rapidly respond to DoD and congressional mandates with great success. The HRL used their in-house experience and access to data and methods from the Aptitude Qualifying Exams in order to deliver an operational product in just over a year. Had this work been contracted out to an unfamiliar organization, it would likely have taken years to develop the operational perspective necessary to deliver a relevant product equivalent to the work of the HRL. Today, a DoD oversight group is working with all of the services to conduct research and to revamp the ASVAB. The other services have maintained robust personnel research organizations and are therefore able to dedicate resources to this vital project. However, the Air Force's ability to support this research is significantly hampered by the limited capability and resources available for this type of work. This lack of current research capability places the Air Force at the mercy of the other services and limits the input of Airmen into the data pool that will influence the future versions of the exam.<sup>29</sup> Additionally, the limited expertise currently available in this area will impede the Air Force's ability to rapidly respond to similar Congressional mandates in the future.

### Air Force Officer Qualifying Test (AFOQT)

Another example of the value associated with organic personnel research in terms of rapid response capability can be seen with the development of the AFOQT. The AFOQT serves as a pre-commissioning qualifier for entrance into the service and particular career specialties for officers. The AFOQT had been initially developed by a predecessor of the HRL in the late 1940s. Revision of the test was conducted by the Laboratory on a quadrennial basis since its inception. The quadrennial review process gave the Air Force the ability to adapt the test to address changes in the service (whether in policy, equipment, or personnel) and by doing so provide the most relevant person-job-match for the Air Force.

The value of this was seen in 1978 when the Air Force opened its cockpits to female pilots. At the time, the AFOQT and the pilot composites within the test, contained a biographical inventory which asked applicants about their personal interests. This portion of the test was the second highest correlating factor related to the completion of initial pilot training and was therefore an important component to the overall score.<sup>30</sup> Unfortunately, the inventory only accounted for male interests and was not appropriate to use for the new female candidates. The initial solution for incorporating the women was to not allow them to take this portion of the test. However, Congressional directives mandated that the test be modified to treat women candidates the same as men. Without any existing data on female pilots, it required the HRL to completely reengineer the pilot composite. This work was completed in just ten months, and it serves as another example of the value of having an organic rapid response personnel research capability, appropriately staffed and ready to modify existing practices and address changes in policy as they occur.<sup>31</sup>

With the closure of the HRL in the late 1990s the AFOQT quadrennial reviews have stopped. Limited funding now only allows review and revision on an 8 year cycle and reductions in funding could further impact that timeline. Additionally, without sufficient internal resources (subject matter experts, budget, etc.) efforts have focused on modifying items within existing subtests rather than exploring greater transformations, such as new subsets, that are required to meet today's evolving operational demands. These limitations in expertise and funding hinder the Air Force's ability to adapt to policy or operational requirements. "Without the organic capability and corporate knowledge required to perform this work, the Air Force is struggling to find qualified contractors that could complete a revision, whether it be routine or in response to specific Air Force mandates."<sup>32</sup> With the advent of Remotely Piloted Aircraft, advanced cyber missions, and an influx of diversity amongst its Airmen the Air Force's operating environment is surely changing. However, these changes are not adequately reflected in the current AFOQT and therefore not appropriately considered when accepting and assigning personnel to these emerging missions and specialties.

### Officer Grade Requirements

An example that illustrates the value of centralized oversight as it pertains to corporate memory and longitudinal research can be seen in the multiple defenses of the Air Force's officer grade requirements. In the mid 1960's it became apparent that the Air Force was carrying a higher proportion of officers, with higher grades, relative to the Army, Navy and the Marine Corps. In response to complaints from the other services, the Senate Armed Services Committee issued an edict to the DoD to justify the need for the Air Force's disproportionately higher grades. The Air Force called upon the HRL to design a methodology to objectively justify the Air Force's need to remain at the higher level. Following the research, Congress and

the DoD were surprised at the data presented and were satisfied with the reasoning. The other services, being unable to match the data presented, had no further objections, and the study resulted in the Air Force being granted an exception to carry a higher proportion of officers.<sup>33</sup>

Years later, in 1972 and again in the mid 1980s, the question came up again. With almost a complete changeover of leadership in each organization, corporate memory involving the previous study was paramount for the Air Force being able to defend its force structure for a second and third time. As a result of having the HRL on-hand, the data, expertise and procedures were available for reference and rapid regeneration, and the Air Force once again walked away unscathed. Had the Air Force employed a contractor to conduct this work, they would likely have needed to start from scratch. Even if contractors had access to the data, the fact that they had no experience in the collection process would have made it difficult for them to reproduce and defend the results. This is another example why corporate knowledge and memory are so critical to personnel research. As questions reemerge over time, having an in-house capability increases the feasibility and speed of completing longitudinal research.

Today, if the other services or Congress were to challenge the Air Force's higher grade structure it would be almost impossible for the Air Force to respond with the needed analysis. The expertise and continuity are extremely limited, and it would require the employment of an increasingly limited senior retiree population to produce the successful results of the past. Reconstituting a government entity to sustain corporate knowledge in these areas would provide the organic capability necessary to respond to similar force structure challenges in the future.

### Enlisted Skill Requirements

The value of central oversight for the purpose of preventing duplication of effort can be seen in a case involving validation of the Air Force's enlisted skill requirements. During the early 1980s the other services claimed that the Air Force was receiving a disproportionate number of highly skilled recruits. They wanted the DoD to place restrictions on the number of category-1 and category-2 recruits a service could enlist in order to turn some of the highly qualified Air Force applicants towards the Army, Navy, or Marines. The idea was to balance the aptitude levels of the personnel coming into each service. The Air Force, on the defense once again, was ready and equipped with occupational survey data to support their case. The data had been collected longitudinally over time and it outlined the average difficulty for amount of time spent on each task in every specialty. This provided a method to calculate the difficulty of the tasks and the specified skill level requirements for all the enlisted career fields. The research had been overseen and validated by the Government Accounting Office (GAO) and had shown that the Air Force would have incurred a higher rate of attrition, specifically in the electronics career fields, if they were to lower their aptitude standards. With this data, the Air Force was able to defend its need for highly competent recruits and maintain its disproportionate level relative to the other services.<sup>34</sup>

In this case, the availability of organic personnel research effectively prevented a duplication of effort. The existence of a central organization that had knowledge of, and access to previous research, obviated the need to recreate the occupational data used to justify higher skill requirements. While in theory a contractor may have been able to accomplish this, the likelihood of success would have been reduced. As noted by Dr. Bruce Gould, former director of the Human Resources Laboratory:

“If a contractor had been brought in from the outside, they wouldn’t have had any idea of what was available. There were a lot of measures that if you didn’t know how they were collected, you could end up down one of several blind alleys. The Labs analysis worked. It demonstrated a relationship between aptitude level and performance requirements for each specialty.”<sup>35</sup>

As seen in these examples, the most stable long-term solution for conducting personnel research is a dedicated, in-house agency. The continuity of such an agency can result in professionals who accrue considerable knowledge and experience in dealing with personnel issues. Such capability can provide highly valuable and readily-available consultation to Air Force policy makers.<sup>36</sup> Without this resource at the ready, senior leaders are vulnerable to making ill informed decisions with costly consequences.

### **Flying Blind**

Since the closure of the Mission Critical Skill Division the Air Force mission has evolved immensely and personnel research has struggled to meet operational demands. Examples of these challenges and their impact can be seen in the development of a Remotely Piloted Aircraft pilot specialty and the service’s inability to advance the enlisted classification composites.

Throughout the eight years of conflict spanning Operations Iraqi and Enduring Freedom, Unmanned Aerial Vehicles, or Remotely Piloted Aircraft (RPA) as they are now called, have been in high demand and short supply. Their ability to provide real time intelligence and target engagement has saved lives and greatly improved overall operational effectiveness. That said, there have been challenges when it comes to manning these systems. Until recently, pilots were piecemealed from other aircraft platforms for a single RPA assignment, possibly as short as two years, before returning to their original aircraft. This practice drove a constant turnover and training requirement that was not only expensive, but also degraded the pilot’s proficiency in



their original airframe. In 2008, the Air Force Chief of Staff responded to this dilemma by directing the establishment of a dedicated RPA pilot career field. To meet his intent, the Air Force Deputy Chief of Staff for Manpower, Personnel and Services (AF/A1), turned to the AFRL to develop a classification process. This process would specify the knowledge, skills, and other characteristics required for RPA pilots and provide a methodology for assessing personnel into the new specialty. Unbeknownst to Air Force leadership, with the closure of the Mission Critical Skills Division, the AFRL mission had been strictly reduced to training research and the maintenance of existing programs. As a result the Air Force had lost the organic capability to complete the necessary research.<sup>37</sup> To mitigate this, the Air Force was forced to divert funding from other programs and pool expertise from across multiple organizations. Much of the required expertise came from a limited group of AFHRL retirees; a resource that is shrinking and therefore not sustainable.

While the process eventually led to the development of the RPA career field, it was extremely inefficient and disorganized. Had there been an organic personnel research agency, one that was organized and adequately resourced, the Air Force could have avoided delay and quickly fielded the RPA capability so desperately in demand. It is this inability to rapidly respond that makes ad-hoc, contracted research inappropriate for today's highly adaptive mission environment, and having organic research capability so critical to operational success.<sup>38</sup>

Personnel research can do a great deal more for the Air Force than just provide operational adaptability, however. In today's tightly constrained budget environment it is necessary to calculate the potential return on investment associated with funding programs. To this end, AF/A1PF conducted a cost savings analysis associated with personnel research, and specifically the revamping of classification composites for new recruits entering the Air Force.

Since 1948, the Air Force has used the same four composites or aptitude areas (mechanical, administrative, general and electronic) to assess potential for success in a given career field. Each career field uses these four areas to specify minimum entry level standards, however, the composites have become outdated and over generalized.<sup>39</sup>

In 2008, AF/A1 conducted a study to relook at the four existing composites and the results showed the need to expand the number to ten areas. A utility model was developed to assess the value of making this transformation. The model used reduced basic training attrition levels and improved performance ratings to establish an associated savings. The results of the study showed that the new composites could increase “predictive ability” of the person-to-job match by 12%, resulting in increased job satisfaction, improved performance and decreased attrition. The overall impact of the initiative, if implemented, would equate to a cost savings of \$25 million dollars a year.<sup>40</sup>

Due to the lack of funding and expertise the process of implementing the new composites has stalled. The initiative requires a dedicated staff to oversee the systems integration and to work with career field managers on establishing the new requirements for each specialty. The other services have been using at least nine composites for years, and as a result, are better able to reduce attrition, enhance job performance, and ultimately improve the person-to-job match, a factor that could ultimately pay for an Air Force program multiple times over.

### **The Way Ahead**

The underfunded and decentralized approach to personnel research has slowed the Air Force’s ability to adapt to the evolving strategic environment, and in effect, contributed to the rapidly expanding costs of personnel management. In the fall of 2009 the Air Force Examining

Activities function of HQ AF/A1PF, in an attempt to advance human capital management cost saving initiatives, proposed a FY12 POM funding request for an annual operating budget of \$4 million dollars. The proposed initiative would establish a small centralized team to oversee the management and conduct of the Air Force's manpower, personnel, and training research. This initiative was termed the Center for Applied Personnel Studies (CAPS), and would operate under HQ AF/A1PF.

"The goal of CAPS would be to expedite the real-world implementation of personnel programs that improve person-job-match as early in the military pipeline as is practical. The foundation of good person-job-match would be accurate measurement of the person, the job, and those attributes which increase the quality of the match."<sup>41</sup>

In line with this mission would be the establishment of the Strategic Research and Assessment Branch (SRAB) at the Air Force Personnel Center. The SRAB would focus on high-level force management issues related to recruiting, selection, classification, utilization, promotion, retention and other manpower, personnel and training concerns.<sup>42</sup> The role of the team would be to maintain and monitor the Air Force 5-Year Personnel Research Plan and would have control over the scheduling and initiation of all personnel research projects. This entity would serve as a connection between high-level issues facing senior personnel managers, and the capability of the research organizations to provide supportive research results.<sup>43</sup> The staff could conduct a limited amount of research internally, and if needed, expand through the use of contracts to support larger requirements. Most importantly, the dedicated SRAB staff would provide a centralized personnel research repository; maintaining the corporate knowledge and providing oversight of existing and future studies to ensure efficient and effective outcomes.<sup>44</sup>

The CAPS and SRAB would bring value to the Air Force by centrally managing the personnel research under a single umbrella. However, to be successful, they will require adequate long term resourcing.

Looking across the joint community for models of success, the Army and Navy have demonstrated a commitment to their organic personnel research functions. The U.S. Army has maintained a standing organization, the Army Research Institute for Behavioral and Social Sciences, since 1939. Currently the institute has 108 civilian government employees dedicated to “providing new technology to meet the personnel and training challenges of the Army, conducting studies and analyses to address short-term issues and respond to emerging ‘hot topics’, and providing technical assistance on critical issues affecting all parts of the Army; the organization, the people, and the technologies for the future.”<sup>45</sup> The Navy also has a dedicated unit to conduct personnel research. The Naval Personnel Research, Studies, and Technology Center in Millington, TN has an estimated operating budget of \$4 million and is manned with approximately 25 research professionals who are government employees, not contractors. In comparison, the Air Force, once the leading service in this area of research, has virtually zero organic capability. With just five personnel and a budget strictly limited to fallout funds from other programs, progress has been difficult if not impossible. As a result, the Air Force is extremely hampered in its ability to contribute to a growing number of Joint studies impacting military force structure.<sup>46</sup>

Using the joint community as a benchmark, the Air Force could look to model the Navy program which suggests the \$4 million dollar annual budget request for CAPS is appropriate. However, funding approval for the initiative is dependent on support from the AF/A1, the Secretary of the Air Force, the DoD, and ultimately Congress. This support can only be obtained

by effectively communicating to all levels the lack of Air Force capability in this area, the need for this type of research, its mission impact and potential for a significant return on investment.

## **Conclusion**

For decades prior to 1999, the Services had their own organizations dedicated to conducting personnel research projects and providing consultation expertise. The Army and Navy have retained their organic capability, the Air Force has not.<sup>47</sup> As seen through examples highlighted in this paper, personnel research has provided the Air Force the science upon which to make important policy in the past, and if organized and funded appropriately, has the potential to do so for years to come. While some of this work can be completed through the use of contractors, maintaining an organic, on-hand personnel research capability has clear advantages over contractual alternatives. A government managed capability brings with it the corporate knowledge, longitudinal focus, and rapid response required to meet the needs of the Air Force's dynamic mission. This internal capability, however, can only be successful if it is adequately funded and manned. The costs associated with funding these research programs have shown the potential for significant return on investment, and therefore it is not a question of whether the Air Force can afford to support these programs, but whether it can afford not to.

## End Notes

- <sup>1</sup> General Norton Schwartz, Brief to U.S. Marine Corps University, 9 March 2010.
- <sup>2</sup> General Norton Schwartz, Brief to U.S. Marine Corps University, 9 March 2010.
- <sup>3</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 9.
- <sup>4</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 5.
- <sup>5</sup> John T. Correll, "The First 60 Years, The Air Force: 1947-2007," Air Force Magazine, December 2006, 14.
- <sup>6</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 21-22.
- <sup>7</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 30.
- <sup>8</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 34.
- <sup>9</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 35.
- <sup>10</sup> Brennan, S. W., & Ritchhart, K. M., "A History of the Human Resources Laboratory from 1968 through 1972." Unpublished manuscript, U.S. Air Force Academy, 19 June 1972.
- <sup>11</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 35.
- <sup>12</sup> U. S. Air Force, Air Force Human Resources Laboratory, *Manpower, Personnel and Training Research and Development in the United States Air Force, 1946-1979 Final Report*, by Leland D. Brokaw, Nancy A. Perrigo. Manpower and Personnel Division, Brooks AFB, Texas: Air Force Systems Command, 1981, 13-14.
- <sup>13</sup> Author unknown, "New Air Force Human Resources Lab to Focus on Training, Management," Defense Industry Bulletin no. 4 (September 1968): Back Cover.
- <sup>14</sup> "Air Force Human Resources Laboratory Tech Reports 1953-2008", Johnny Weissmuller, Archive DVD-ROM
- <sup>15</sup> Author Unknown, "Human Resources Lab Accelerates Research," Aviation Week & Space Technology, July 19, 1976, 225.
- <sup>16</sup> Correll, John T., The First 60 Years, The Air Force Association, December 2006, 24.
- <sup>17</sup> Bond, David F., "Air Force to Reduce Research Overhead With Mergers, Creation of Four 'Superlabs'", Aviation Week & Space Technology, December 3, 1990, 68.
- <sup>18</sup> Bond, David F., "Air Force to Reduce Research Overhead With Mergers, Creation of Four 'Superlabs'", Aviation Week & Space Technology, December 3, 1990, 68.
- <sup>19</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, e-mail conversation with author, March 11, 2010.
- <sup>20</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.
- <sup>21</sup> "Talking Paper on Center for Applied Personnel Studies", Johnny Weissmuller, October 14, 2009.
- <sup>22</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 2.
- <sup>23</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, e-mail conversation with author, March 11, 2010.
- <sup>24</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, e-mail conversation with author, March 11, 2010.
- <sup>25</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 9.
- <sup>26</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 4.
- <sup>27</sup> "Talking Paper on Center for Applied Personnel Studies", Johnny Weissmuller, October 14, 2009.

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<sup>28</sup> Author Unknown, "Human Resources Lab Accelerates Research," Aviation Week & Space Technology, July 19, 1976, 225.

<sup>29</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>30</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, telephone conversation with author, April 6, 2010. For example, if a candidate indicated an interest in sports versus reading, there was a greater likelihood he or she would complete initial pilot training. This is not to suggest that the relationship was causal, but rather a mere correlation.

<sup>31</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>32</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>33</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>34</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>35</sup> Dr. Bruce Gould, Human Resources Laboratory Division Chief (retired), telephone conversation with author, January 15, 2010.

<sup>36</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 12.

<sup>37</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, e-mail conversation with author, March 11, 2010.

<sup>38</sup> Dr. Lisa Mills, Chief, Air Force Testing Policy and Examining Activities Program, HQ AF/A1PF, telephone conversation with author, January 15, 2010.

<sup>39</sup> Johnny Weissmuller, Deputy, Strategic Research & Assessment Branch, HQ AFPC/DSYX, telephone conversation with author, January 15, 2010.

<sup>40</sup> "ASVAB Composites Leadership Brief", Lisa Mills, May 7, 2008.

<sup>41</sup> "Talking Paper on Center for Applied Personnel Studies", Johnny Weissmuller, October 14, 2009.

<sup>42</sup> "Talking Paper on Center for Applied Personnel Studies", Johnny Weissmuller, October 14, 2009.

<sup>43</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 11.

<sup>44</sup> "CAPS and APAT Center Telecom Minutes" Air Force Personnel Center, Strategic Research and Assessment Branch, October 15, 2009, 6.

<sup>45</sup> Army Research Institute, <http://www.hqda.army.mil/ari/about/mission.shtml>

<sup>46</sup> Dr. Lisa Mills, Chief, Air Force Testing Policy and Examining Activities Program, HQ AF/A1PF, telephone conversation with author, January 15, 2010.

<sup>47</sup> "Air Force Five Year Personnel Research Plan", Operational Technologies Corporation, September 2, 2006, 4.

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